

## **REMARKS**

This amendment is responsive to the Non-Final Office Action mailed on December 14, 2009. Claims 1, 2, 4, 6-20, 22, 24-31, 33 and 35-44 stand rejected and claim 43 is objected to. Claims 42-44 have been amended. In view of the following remarks, Applicant respectfully submits that this application is in complete condition for allowance and requests reconsideration of the application in this regard.

### **Claim Objection**

The Examiner has objected to claim 43 for informalities. Applicant has amended this claim as recommended by the Examiner to recite "The system of claim 13". Applicant has also removed the language "subjecting the optimizer". As such, Applicant respectfully requests the objection of claim 43 be withdrawn.

### **Rejections under 35 USC §112**

The Examiner has rejected claims 42-44 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended claims 42 and 44 to recite "subjecting the optimization of the parameters to-at least once constraint" to overcome the lack of antecedent basis. Applicant has also amended claim 43 as discussed above, which also overcomes the lack of antecedent basis. Thus, Applicant respectfully requests that the rejections of claims 42-44 be withdrawn.

### **Rejections under 35 USC §102**

Turning to the art-based rejections, the Examiner has rejected claims 1-2, 4, 6-20, 22, 24-31, 33 and 35-41 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,625,255 to Green et al. (*Green*). Of these claims, claims 1, 13, 20 and 30 are independent claims. In order for a reference to anticipate a claimed invention, the reference must teach each and every element in the precise arrangement set forth in the claim. *See* MPEP § 2131. If the reference fails to teach even one of the claimed features, the reference does not and cannot anticipate the claimed invention.

Turning specifically to the §102(e) rejection of independent claim 1 which is directed to a method for the prediction and optimization of a communications system. Claim 1 recites

“inputting data from a plurality of channels into a prediction module of the communications system,” “predicting a performance of at least one of the plurality of channels using a plurality of parameters to characterize the performance of the at least one of the plurality of channels,” “creating at least one transfer function model of the at least one of the plurality of channels,” where “the at least one transfer function model is simulated using physical configuration information of the communications system,” and “optimizing the parameters of at least one of the plurality of channels in order to improve a bit rate of the at least one of the plurality of channels in the communications system.”

The Examiner contends that *Green* discloses all of the limitations of claim 1. Applicant, however, respectfully disagrees. *Green* fails to disclose “optimizing the parameters of at least one of the plurality of channels in order to improve a bit rate of the at least one of the plurality of channels in the communications system.” In fact, *Green* fails to disclose or suggest the optimization of anything, let alone the parameters of at least one channel.

In Fig. 3, *Green* discloses a modem qualification setup to qualify the data rates of modems 306 and 308. *Green* then discloses at col. 6, lines 40-45 that the setup includes an ADSL wireline simulator 304 situated between the modems 306 and 308 that simulates characteristics of a loop. The simulator 304, in turn, receives the loop characteristic data from a computer 302. *Green* then discloses that the modems 306 and 308 transmit data to each other and the bit error rates for those modems 306 and 308 are determined at col. 6, lines 50-57. Thus, *Green* discloses that the modems 306 and 308 are qualified at a particular transmission rate for the loop based on those modems based on acceptable bit error rates at col. 7, line 64 to col. 8, line 9.

In essence, *Green* discloses a system in which the modems are qualified to operate at a particular speed. Specifically, *Green* does nothing more than disclose a process in which modems are qualified for transmission up to a data rate when a threshold value of bit error rate for that data rate is reached at col. 7, line 64 to col. 8, line 9. *Green* fails to disclose optimizing these data rates to achieve optimal or near-optimal data rates. *Green* is only concerned with determining an acceptable maximum transmission rate of a particular modem and fails to disclose optimizing any parameters of “at least one of the plurality of channels in order to improve a bit rate of the at least one of the plurality of channels” as recited in claim 1. The only optimization considered by *Green* is disclosed a col. 5, lines 8-19, where *Green*

contemplates optimizing the data handling of loops within a telephone office using predicted data rates. Applicant therefore respectfully submits that *Green* fails to disclose “optimizing the parameters of at least one of the plurality of channels in order to improve a bit rate of the at least one of the plurality of channels in the communications system” as recited in independent claim 1 and therefore cannot anticipate independent claim 1. Consequently Applicant respectfully requests that the rejections of claim 1, and of claims 2, 4, and 6-12 which depend therefrom be withdrawn.

Furthermore, *Green* actively teaches away from optimizing parameters of a channel. Specifically, *Green* discloses that channels of a loop are actively discarded when those channels yield a BER below a particular threshold, as illustrated in Fig. 4 at 416 and disclosed at col. 7, lines 19-25. *Green* would not suggest optimizing parameters of a channel to one of ordinary skill in the art since it specifically discloses that any undesirable channels are eliminated from the eventual calculation of a data rate. As such, Applicant respectfully submits that independent claim 1 also non-obvious over *Green*.

With respect to independent claim 13, this claim also similarly recites in part “an optimization module, wherein the optimization module finds the optimum characterization for the at least one channel based on at least one design criteria.” As set forth above with respect to independent claim 1, *Green* fails to disclose any optimization, but rather discloses increasing the transmission rate in order to find a maximum transmission rate within an acceptable bit error rate. Furthermore, *Green* fails to disclose finding an optimum characterization for at least one channel based on at least one design criteria. Therefore, *Green* also fails to anticipate independent claim 13. Consequently, Applicant respectfully requests that the rejections of claim 13, and claims 14-19 which depend therefrom, be withdrawn.

With respect to independent claim 30, this claim also similarly recites in part “optimizing the at least one parameter of at least one channel in order to improve a bit rate of the at least one of the channels in the communications system.” As set forth above with respect to independent claims 1 and 13, *Green* fails to disclose or suggest any optimization, but rather discloses increasing the transmission rate in order to find a maximum transmission rate within an acceptable bit error rate. Therefore, *Green* fails to anticipate independent claim 30. Consequently, Applicant respectfully requests that the rejections of claim 30, and claims 31, 33, and 35-41 which depend therefrom, be withdrawn.

Finally, with respect to independent claim 20, claim 20 recites in part “characterizing the at least one channel using said at least one transfer function model and said impairment.” (emphasis added). As discussed above, *Green* is directed to determining whether two modems qualify at a particular speed based upon characteristics of a reference loop. *Green*, however, fails to disclose or suggest characterizing at least one channel using a transfer function and an impairment. Rather, in the passage cited by the Examiner, *Green* discloses characterizing a loop with a transfer function that models effects, such as attenuation, flat noise, and coupled noise of the reference loop on signals, such as tones, transmitted through it. Regardless of the fact that *Green*’s transfer function may model effects, *Green* fails to disclose characterizing at least one channel using both the transfer function and an impairment. Based on the deficiencies of *Green* identified above, Applicant respectfully requests that the rejections of claims 20, and claims 22, 24-29 which depend therefrom, be withdrawn.

As a final matter, Applicant traverses the Examiner’s rejections of the dependent claims based upon their dependency on the aforementioned independent claims. Nonetheless, Applicant notes that a number of these claims recite additional features that further distinguish these claims from the references cited by the Examiner. In the interest of prosecutorial economy, only a few dependent claims will be addressed separately herein.

With respect to claims 4, 22, and 33, Applicant notes that each of these claims recite that the at least one transfer function model is simulated using a spectrum management system. *Green*, however, fails to disclose a spectrum management system that simulates a transfer function. *Green* instead uses a simulator 304 that receives the loop characteristic data. As such, Applicants respectfully submit that *Green* fails to disclose that the at least one transfer function model is simulated using a spectrum management system. Based on the deficiencies of *Green* identified above, Applicant respectfully requests that the rejections of claims 4, 22, and 33 be withdrawn.

Moreover, with respect to claims 42-44, claims 42 and 44 depend upon claims 1 and 30, respectively, and recite “subjecting the optimization of the parameters to at least one constraint selected from the group consisting of: transfer functions and uncertainties, pricing as a function of service level, service type, spectral management rules, residential customers, home office customers, small business customers, general business customers, and combinations thereof.” As set forth above, *Green* fails to disclose or suggest any constraints related to any

optimization of a channel, because *Green* fails to disclose any optimization of parameters related to one of the plurality of channels and in fact actively teaches away from such optimization. Therefore, claims 42 and 44 not anticipated by *Green* for at least these additional reasons.

Turning to claim 43, this claim depends upon claim 13 and recites that “the at least one design criteria is selected from the group consisting of: transfer functions and uncertainties, pricing as a function of service level, service type, spectral management rules, residential customers, home office customers, small business customers, general business customers, and combinations thereof.” As set forth above, *Green* fails to disclose any design criteria used by an optimization module to find the optimum characterization for a channel, because *Green* fails to disclose any optimization related to a channel and in fact actively teaches away from such optimization. Therefore, claim 43 is also not anticipated by *Green* for at least these additional reasons.

Applicant respectfully submits that no new matter is being added by the above amendments, as the amendments are fully supported in the specification, drawings and claims as originally filed. Applicant also notes that the amendments made herein are being made only for facilitating expeditious prosecution of the aforementioned claimed subject matter. Applicant is not conceding in this application that the originally claimed subject matter is not patentable over the art cited by the Examiner, and Applicant respectfully reserves the right to pursue this and other subject matter in one or more continuation and/or divisional patent applications.

### **Conclusion**

Applicant has made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing amendments to the claims and remarks given herein, Applicant respectfully believes this case is in condition for allowance and respectfully requests allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicant is of the opinion that no additional fee is due as a result of this Amendment. Payment of all charges due for this filing is made on the attached Electronic Fee

Sheet. If any additional charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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Date

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